Software Requirements Specification
for
Library Management System

Version 1.0 approved

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1. Introduction

1.1 Purpose

A Library management system is a software that is used to maintain the record of the library. It contains the record of each book and its author. It also contains the number of available books and number of books which have been issued. A user can easily access any book and get information about it through the system. Library management system allows the librarian to maintain library resources in a more operative manner that will help to save their time. It is also convenient for the librarian to manage the process of books allotting and making payment. Library management system is also useful for students as well as a librarian to keep a constant track of the availability of all books in a store.

1.2 Document Conventions

The following are the list of conventions and acronyms used in this document and the project as well:
Administrator: A login id representing a user with user administrator privileges to the software

- ➔ ***User:*** *A general login id assigned to most users.*
- ➔ ***Client:*** *Intended users for the software.*
- ➔ ***SQL:*** *Structured query language used to retrieve information from a database.*
- ➔ ***SQL Server:*** *A server used to store data in an organized format.*
- ➔ ***Layer:*** *Represents a section of the project.*
- ➔ ***User interface layer:*** *The section of the assignment referring to what the user interacts with directly.*
- ➔ ***Data storage layer:*** *The section of the assignment referring to where all data is recorded.*
- ➔ ***Use case:*** *A broad level diagram of the project showing a basic overview.*
- ➔ ***Unique Key:*** *Used to differentiate entries in a database*

1.3 Intended Audience and Reading Suggestions

The intended audiences for this document are

- ➔ *The team members of library management system*
- ➔ *The faculty of Software Engineering Lab is the client*
- ➔ *The project is supervised by the faculty and made by the software engineering lab students*

This document will be reviewed frequently by the above audiences to check if the different phases of the project are being completed by meeting the given requirements.
If there are any changes in the requirements in the course of the project they must be included in this document by making the necessary changes.

1.4 Product Scope

Project title: Library Management System
Project justification: This project is basically updating the manual library system into an internet based application so that the users can now the details of their account 2availability of books etc.
Project Characteristics and requirements:

1. *Secured database*
2. *User tracking*
3. *Search feature*
4. *Checking the availability of books*

Project Success Criteria: Our main goal is to complete this project within the allotted dead line and also within the budget allotted. It is necessary to develop a method for capturing the benefits while the library management system is being developed, tested and after it is rolled out.

2. Overall Description

2.1 Product Perspective

Libraries are part & parcel of human life. Libraries are one of the main sources of self-learning. After being hit by Covid-19, all the libraries have been closed for a long time. As human contact is reduced there is no way to manage the libraries & issue books to people. This is why we have tried to implement our library management system. This system will work online. So, there is a reduced need for human interaction. Library managers will be able to issue books through this portal. Students will be able to request new books, they will also be able to donate books through this portal.

2.2 Product Functions

The major functions of our project are given below:

- *Admin log-in*
- *Student log-in*
- *Book Issue*
- *Book Request from Students*
- *Book Donation from Students*
- *Notifications*
- *Book Requests or Donation Approval by Admin*

2.3 User Classes and Characteristics

There are two user classes in our project:

- ***Admin: Our software's Admin is the Library Manager.*** *They will have the power to add new books to the library. They will be able to check the book requests and donation requests. Admin will accept or reject those requests. Admins will also issue books to students.*

- ***Student:*** *Students will have a user ID which will be their student ID. They will login by using a password. Students will be able to request books. They can donate books. They will also see the status of these requests.*

2.4 Operating Environment

Our library management system will be implemented as a web application. So, it will be able to run on any browser. It will be able to run on every operating system.

2.5 Design and Implementation Constraints

This system is web based. So, there will be a need to provide PC Server hardware connected to the internet.
Our system will be used by all the students at the university. So, we have to make this application user-friendly, as it is almost impossible to train those users in how to use the application. There should be instructions within the application, and appropriate error messages for invalid inputs.
Library management systems need to be secure. No student should be able to modify the book, this privilege is only for admins. So, we need to make sure that login is secured.
Reliability is vital to library operation. Our application should not have any unscheduled down time during library operation hours. Any down time in operation hours has significant impact to the operation and cause inconvenience to everyone in library.

2.6 Assumptions and Dependencies

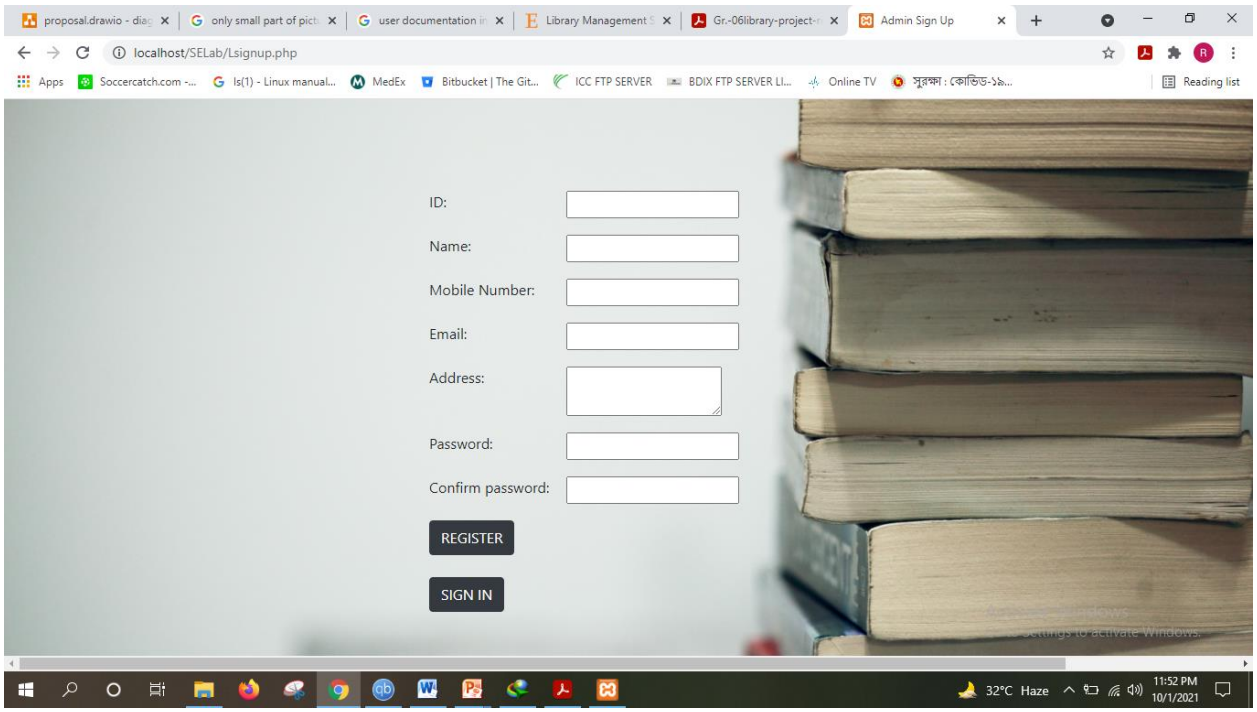
The following is a list of assumptions and dependencies that would affect the software requirements if they turned out to be false:

- *Users have a basic understanding to PC and Windows and the internet.*
- *There is a method to convert all book records and library user records from*
- *the existing system into the DLSSYSTEM.*

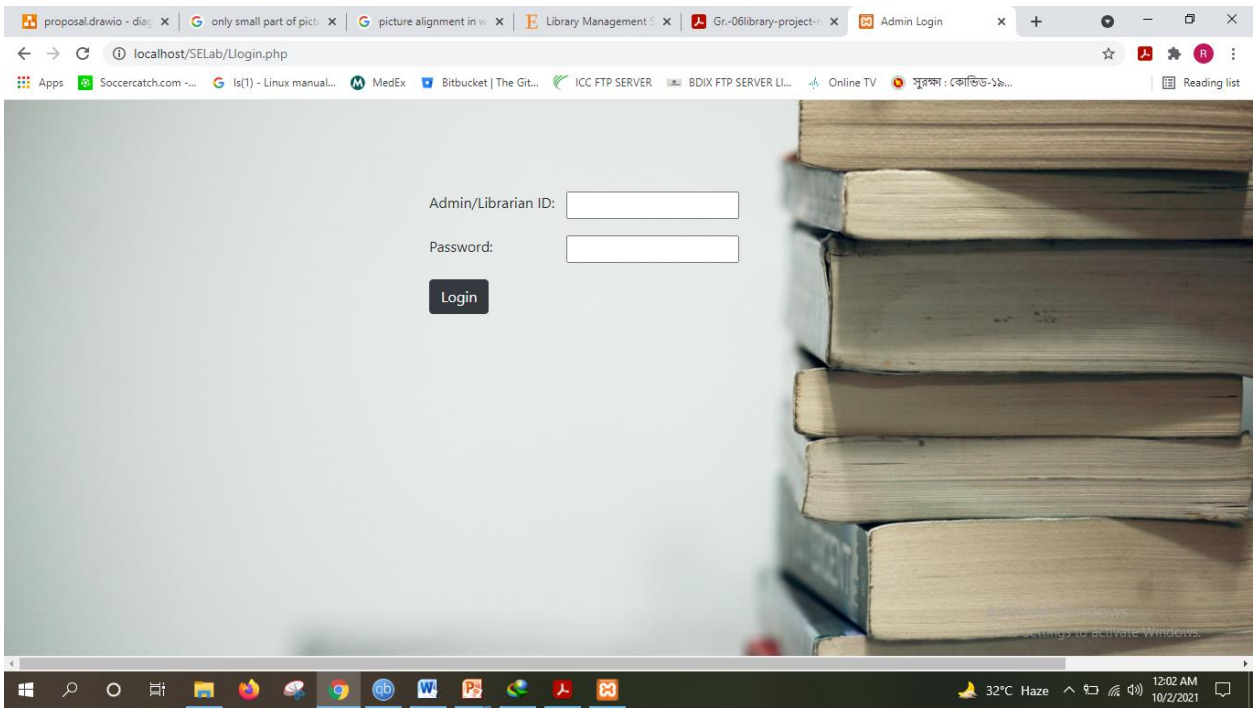
3. External Interface Requirements

3.1 User Interfaces

Admin sign-up Interface: *Admin will sign up using this page.*



Admin Sign-in Interface: *Admin will sign-in using this.*



Books Allocation by Admin: *Admin will allocate books through this.*

ADMIN HOME

BORROW

RETURN

HOME

Donation Review by Admin: *Each book's donation request will be approved or rejected by the admin.*

donationId	bookName	image	writterName	publication	edition	gener	discription	quantity	studentsid	
1	The Alchemist	imageDb/The Alchemist.jpg	Paulo Coelho	Goodreads	1.0.0	Novel	x,y	3	9	 STATUS approved SAVE

Request List for Admin: *Admin will see the request list.*

booksbookId	studentsid		
2	9	STATUS approved	SAVE

Request Review by Admin: *Admin will review the requests.*

Books Allocation by Admin: *Admin may issue books to students.*

Book's ID	Issue Date	Due Date	Return Date	Fine
1	2021-09-25	2021-09-29	2021-09-27	0
3	2021-09-21	2021-09-30	2021-09-27	0

Student Sign-up & Sign-in: *Students can sign-up & sign-in through these pages. These pages look the same as the admin sign-up & sign-in page.*

Student Donate Books: *Student will be able to donate books through this page.*

Book Name:

Cover Image: Choose File No file chosen

Writer Name:

Publication:

Edition:

Genre:

Address:

Quantity:

UPLOAD

Student Donate History: *The donation history of students are given here*

Donation Id	Book Name	Image	Writer Name	Publication	Edition	Genre	Description	Quantity	Status
1	The Alchemist		Paulo Coelho	Goodreads	1.0.0	Novel	x,y	3	pending

3.2 Hardware Interfaces

The supported devices for our application are PC, Laptop, Mobile phones.

3.3 Software Interfaces

Our application takes data from the application and stores it in PHPmyadmin database. When that data is needed it takes the data from the database and shows it in the application. There is also a use of CSS.

4. System Features

4.1 Sign Up/Login (Both).

This feature is used by the user to login/Sign up into the system. They are required to enter user id and password before they are allowed to enter the system .The user id and password will be verified and if invalid id is there, the user is allowed to not enter the system.

4.2 Search for a book:

The system should process a request by the user to look up information about a specific entry. The user can supply book title, author name, category which will then be provided by a list of books that match the user request.

4.3 Edit Book Name (Librarian/Admin).

This feature is used by the librarian or admin into the system. They can edit a perticular book name for any reason.

4.4 Edit Writer Name of an existing book (Librarian/Admin).

This feature is used by the librarian or admin into the system. They can edit the writer 's name of an existing book.

4.5 Books List (Student).

Librarians find it challenging to physically locate the books when demanded by many members. The library management software enables the librarian to search the records, track the history and issue the book within minutes. When a user returns a borrowed book back to the library, the entry for his borrowing action must be updated with the date returned. Also for book entry; the number of available copies of the book must be incremented.

4.6 Add to Bookmark List (Student).

This feature is used by the students in the system. They can add their preferred bookmark list.

4.7 Delete from Bookmark List (Student).

This feature is used by the students in the system. They can delete a book from the bookmark list. The administrator should be prompted for the book and that entry should be deleted from the system.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The proposed system will be used among different departments of the university and by diverse groups of users such as staff, students, and faculty members. Therefore, it is expected that the database would perform functionally by fulfilling all the requirement specified by the university.

5.2 Safety Requirements

As of like many other software, there is always a possibility of database failure and complete system shutdown. To minimize the effect of such incidents, the database needs to be backed up after a certain period.

5.3 Security Requirements

The software has limited access based on the user type. A certain user can access only his part of information. Only the system admin can access all information and perform data delete and edit operation. The passwords are hashed for all users so the system admin can't get a user's password at any point.

5.4 Software Quality Attributes

Running this kind of big system needs enough memory and computation power. It is necessary to identify the maximum number of users at a time and estimate hardware requirement (CPU, memory) based on that. The hardware should also be able to hold a large database and create backups.

5.5 Software Constraints

As it is a web-based application, the system needs web servers, database management system and development tools.

5.6 Design Constraints

The interface of the software should be designed by keeping in mind about maximum user friendliness and usability. The design should be consistent in all browsers and mobile devices.

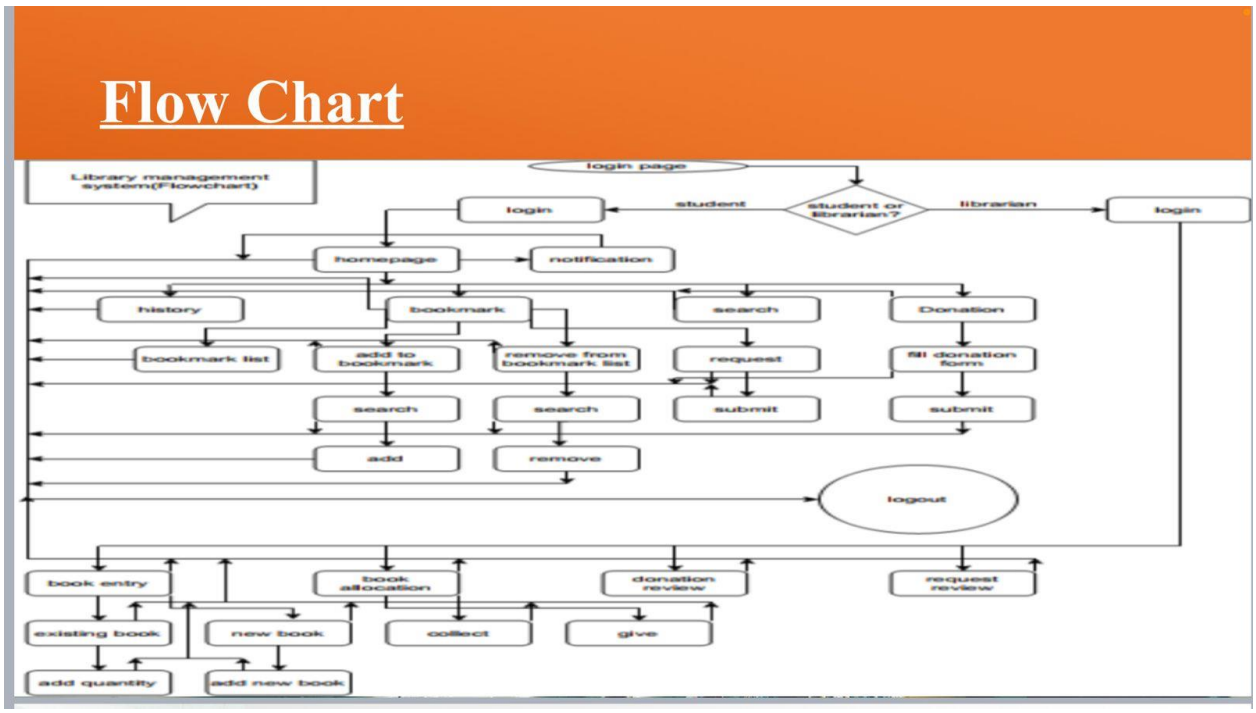
6. Appendix

6.1 Appendix A: Figures

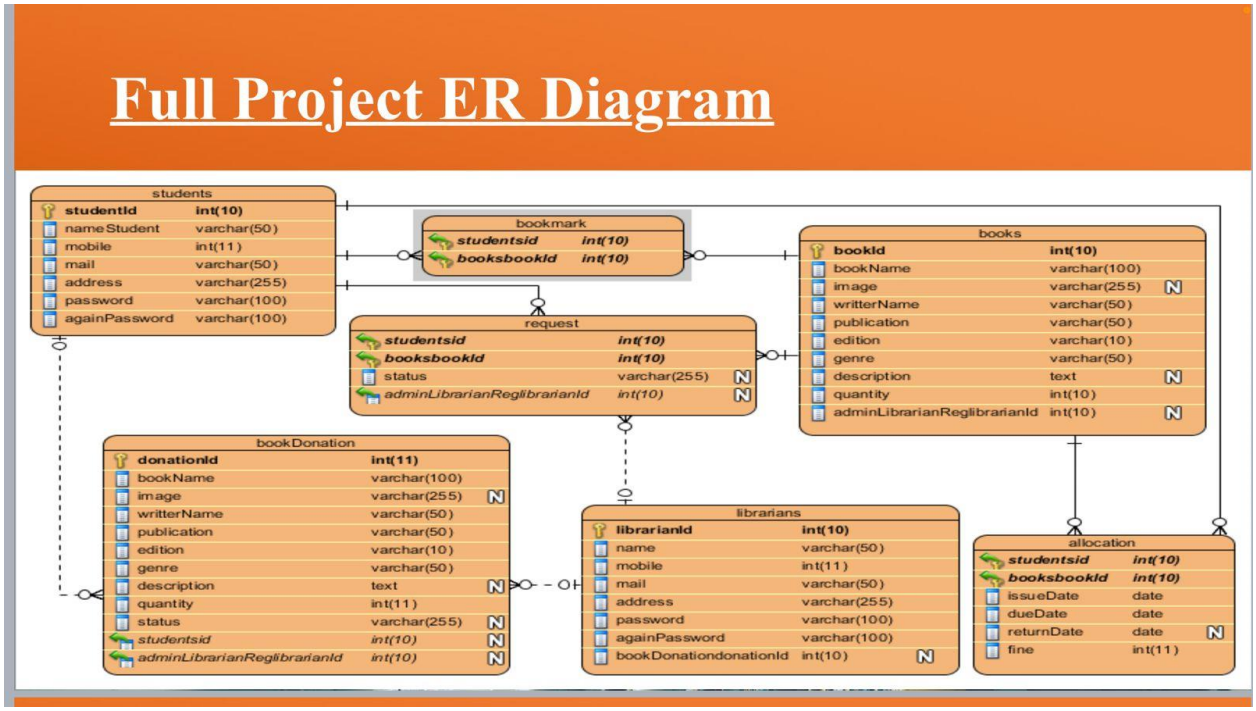
Admin sign-up Interface
Admin Sign-in Interface
Books Allocation by Admin
Request List for Admin
Student Sign-up & Sign-in
Student Donate History

6.2 Appendix B: Diagrams

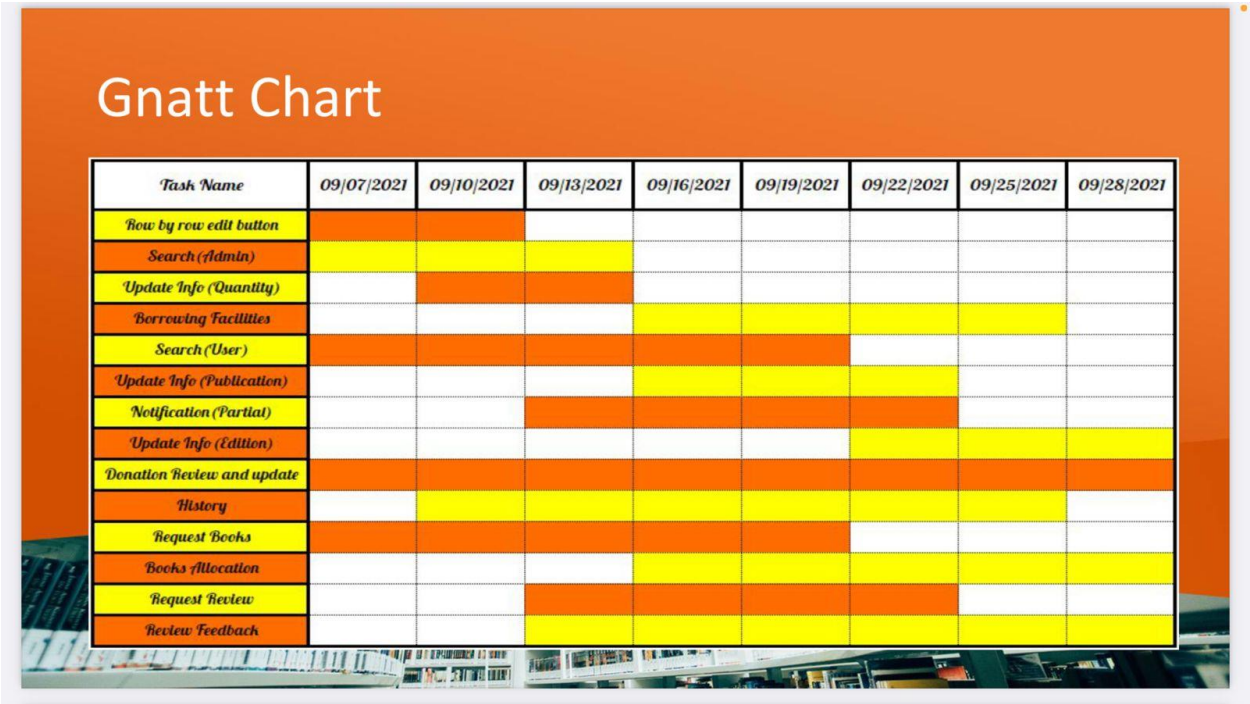
Flowchart



ER Diagram



Gnatt Chart


Gnatt Chart
Task Name
09/07/2021
09/10/2021
09/13/2021
09/16/2021
09/19/2021
09/22/2021
09/25/2021
09/28/2021
Row by row edit button
Search (Admin)
Update Info (Quantity)
Borrowing Facilities
Search (User)
Update Info (Publication)
Notification (Partial)
Update Info (Edition)
Donation Review and update
History
Request Books
Books Allocation
Request Review
Review Feedback